



City of Richmond

Report to Committee

To: Finance Committee

Date: November 20, 2023

From: John Irving, P.Eng., MPA
General Manager, Engineering and Public Works
Chief Executive Officer, Lulu Island Energy Company

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Jerry Chong, CPA, CA
General Manager, Finance
Chief Financial Officer, Lulu Island Energy Company




Re: Lulu Island Energy Company – 2024 Operating and Capital Budgets

Staff Recommendation

That the Lulu Island Energy Company report titled “Lulu Island Energy Company – 2024 Operating and Capital Budgets”, dated November 20, 2023 from the Chief Executive Officer and Chief Financial Officer, Lulu Island Energy Company be received for information.

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Chief Executive Officer,
Lulu Island Energy Company
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REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER 	
REVIEWED BY SMT	INITIALS: 
APPROVED BY CAO 	

Report

DATE: October 20, 2023

TO: LIEC Board of Directors

FROM: Alen Postolka, P.Eng, Manager, District Energy

Re: **Lulu Island Energy Company – 2024 Operating and Capital Budgets**

Staff Recommendation

1. That the 2024 operating budget for Lulu Island Energy Company as presented in the staff report titled “Lulu Island Energy Company – 2024 Operating and Capital Budgets”, dated October 20, 2023 be approved.
2. That the 2024 capital budget for Lulu Island Energy Company and funding as presented in the staff report titled “Lulu Island Energy Company – 2024 Operating and Capital Budgets”, dated October 20, 2023, totalling \$2,225,000 be approved.

Background

Lulu Island Energy Company (LIEC), a wholly-owned corporation of the City of Richmond (City), provides district energy services on behalf of the City. LIEC owns and operates the Alexandra District Energy Utility (ADEU) and the City Centre District Energy Utility (CCDEU). A summary of LIEC’s District Energy Utility (DEU) services is detailed in Attachment 1. The City of Richmond identified DEUs as a leading strategy to achieve its greenhouse gas (GHG) reduction goals. To date, it is estimated that LIEC’s district energy system has resulted in a reduction of over 12,980 tonnes of GHG emissions.

On September 22, 2022, LIEC executed a Project Agreement (PA) with Corix Utilities Inc. (Corix) and Canada Infrastructure Bank (CIB) to design, build, finance, operate and maintain CCDEU Infrastructure, providing heating and cooling services to new residential, commercial, and mixed-use developments within the City Centre area. The existing Oval Village District Energy Utility (OVDEU) infrastructure was incorporated into the CCDEU project, and all OVDEU capital work and operations will be executed by Corix under the Project Agreement.

The purpose of this report is to present LIEC’s 2024 operating and capital budgets to the board for their approval. If approved by the board, staff will present LIEC’s 2024 operating and capital budgets to City Council for information in order to follow the City’s reporting process.

2024 Operating Budget

All capital and operating costs are recovered through revenues from metered billings, ensuring that the business is financially self-sustainable.

Although LIEC's district energy utilities (DEUs) are at different stages of their operational life, they are still relatively new utilities. Hence, the operating costs are estimated using previous years' operational and maintenance expenses for electricity and natural gas utilities, while taking into consideration new assets in the upcoming year. Customers' energy use and building performance are estimated based on historical metered energy consumption, average building performance in a region, and energy modeling reports from the developer's engineers when actual data is unavailable.

The 2024 operating budget incorporates estimated revenues and expenses from the ADEU and CCDEU based on the current projections, development activity, and timing of connections for the 2024 year. The budgeted operating expenses also include the approved accrued amounts owing as defined in the CCDEU Project Agreement.

LIEC is classified as a Government Business Enterprise (GBE). As a GBE, LIEC is required to apply International Financial Reporting Standards (IFRS) in the preparation of its financial statements. Table 1 outlines the proposed 2024 operating budget alongside a comparison to the 2023 submission.

Table 1: 2024 Operating Budget under IFRS

	2024 Budget	2023 Budget	\$ Changes	% Change
Revenues				
Metered Billings (Quarterly)	\$8,843,699	\$7,819,757	\$1,023,942	13%
Service fee	981,486	981,486	-	-%
	9,825,185	8,801,243	1,023,942	12%
Cost of Sales				
Contracts	2,384,880	1,830,377	554,503	30%
Utilities	2,714,879	1,975,414	739,465	37%
Amortization	1,923,980	1,951,433	(27,453)	(1%)
	7,023,739	5,757,224	1,266,515	22%
Gross margin	2,801,446	3,044,019	(242,573)	(8%)
General and Administration Expenses				
Salaries and benefits	1,038,072	1,008,550	29,522	3%
Administration expenses	417,741	402,521	15,220	4%
Insurance	418,160	334,722	83,438	25%
Professional Fees	465,282	199,000	266,282	134%
	2,339,255	1,944,793	394,462	20%
Net income before other items	462,191	1,099,226	(637,035)	(58%)
Contributions and Financing expense				
Developer contributions	557,442	505,084	52,358	10%
Energy modeling review fee	27,000	27,000	-	-%
Net financing expense	(684,616)	(1,037,586)	352,970	(34%)
	(100,174)	(505,502)	405,328	(80%)
Net Income	\$362,017	\$593,724	(\$231,707)	(39%)
Earnings before interest, taxes and amortization (EBITA)				
Net income per above	\$362,017	\$593,724	(\$231,707)	(39%)
Net financing expense	684,616	1,037,586	(352,970)	(34%)
Amortization expense	1,923,980	1,951,433	(27,453)	(1%)
EBITA	\$2,970,613	\$3,582,743	(\$612,130)	(17%)

Revenues

The budgeted revenues are based on the projected building connection timings and customer energy usage. The 2024 budgeted metered billings are expected to increase in 2024 by \$1,023,942 to \$8,843,699 (2023 – \$7,819,757) due to:

- An increase of \$661,910 from additional energy use as a result of servicing three developments that were connected in 2023 (Onni Riva 4, One Park, and ASPAC 17), alongside anticipated partial year connection of one new building in 2024 (Richmond Centre Phase 1b); and
- An increase of \$362,032 due to the annual utility rate increase as approved by LIEC board.

There is no requested increase in the LIEC annual service fee of \$981,486. The fee is for LIEC services to explore and advance district energy opportunities in Richmond, and results in numerous benefits to the City and the Richmond community. With or without LIEC, the City would need to fund these costs in order to successfully implement district energy initiatives for the City and position itself at the forefront of tackling local and global environmental challenges. The City identified district energy utilities (DEUs) as a leading strategy to achieve the City's greenhouse gas (GHG) reduction goals. To date, it is estimated that LIEC's district energy system has resulted in a reduction of over 12,980 tonnes of GHG emissions.

The overall budgeted revenue is expected to increase by \$1,023,942 to \$9,825,185 (2023 – \$8,801,243).

Cost of Sales

The cost of sales is the accumulated total expenses associated with the metered billing revenue, which includes contracts, utilities (electricity and natural gas), and amortization expenses. The total contracts expense, which includes maintenance, operating labour, and asset management costs, has increased by \$554,503 to \$2,384,880 (2023 - \$1,830,377). This increase is due to the additional operation and maintenance activities required to service additional buildings in the CCDEU service area, as well as the on-site low carbon energy plants (LCEP) in 2024.

Utility expenses are projected to increase by \$739,465 to \$2,714,879 (2023 – \$1,975,414). This increase is due to utility (electricity and natural gas) rate increases, and increased energy demand. The growth in energy demand – due to the additional connections – and operation of on-site LCEPs, will result in higher overall use of electricity and natural gas to run thermal energy distribution equipment to deliver energy to customer buildings.

The amortization expense is projected to decrease due to the timing of assets being capitalized and a change in accounting estimate that came into effect last year. Overall, the cost of sales is expected to increase by \$1,266,515 to \$7,023,739 (2023 – \$5,757,224).

The gross margin as a percentage of revenue has decreased to 28.5% (2023 – 34.6%) due to the initial operation and maintenance costs necessary to service new developments, and overall increase in the operations costs, while the revenues collected from new buildings are expected to increase as they are fully occupied.

General and Administration Expenses

The general and administration expenses are expenditures incurred to support business activities, such as salaries and benefits, administration, professional fees, insurance, and others. The expenditures have increased in comparison to 2023 due to the increase in operation and administration costs associated with the CCDEU project implementation, as well as the costs required to administer low-interest financing from CIB. As more customers are connected to the utility, the general and administration expenses in relation to the revenue will become trivial when compared to the scale of the CCDEU project.

Table 2: Percentage of Revenue

Percentage of Revenue	2024	2023
Gross margin	28.5%	34.6%
Salaries and benefits	10.6%	11.5%
Administration expense	4.3%	4.6%
Insurance expense	4.3%	3.8%
Professional fees	4.7%	2.3%
Total general and administration expense	23.8%	22.1%
Net income	3.7%	6.7%
EBITA	30.2%	40.7%

The budgeted general and administration expenses are projected to increase by \$394,462 to \$2,339,255 (2023 – \$1,944,793) due to:

- Salaries and benefits – The increase of \$29,522 to \$1,038,072 (2023 – \$1,008,550) is due to estimated adjustments to existing salaries and fringe benefits based on the City’s forecasted annual increases. Salaries and benefits also include additional staffing levels as approved by the Board on November 20, 2023;
- Administration expense – the administration expense has increased by \$15,220 to \$417,741 (2023 – \$402,521) mainly due to the increase to Project Agreement administration expenses which include overhead costs to administer Corix’s special purpose entity, LIEC reporting, and CIB reporting and financing administration requirements. It also includes administration and overhead fees that LIEC pays to the City for day-to-day support and coordination on district energy projects. This cost is estimated to be \$58,644 in 2024 (2023 – \$56,936);
- Insurance – The increase of \$83,438 to \$418,160 (2023 - \$334,722) is due to the additional capital assets being insured, insurance rate increases, and the additional insurance coverage (comprehensive environmental liability) and deductions required under the CCDEU Project Agreement; and

- Professional fees – the professional fees expense has increased by \$266,282 to \$465,282 (2023 – \$199,000) due to the audit, bank account, collateral agent and insurance trustee fees for Corix’s special purpose entity and the cost for completing engineering studies under the CCDEU Project Agreement. The LIEC audit expense is projected to increase due to the additional audit work surrounding the CCDEU project and increase in the financial position.

Overall, general and administration expenses as a percentage of revenues are at 23.8% for 2024, slightly higher than last year (2023 – 22.1%).

Contributions and Financing Costs

The contributions and financing costs represent other sources of revenue and financing for the business, which include:

- Developer contributions – This revenue refers to all the distribution piping systems, energy transfer stations, and construction costs within a development property line. These costs are paid by developers. LIEC owns these capital assets, and recognizes a contribution from developers for the amount reimbursed. Developer contributions are projected to increase for the next year due to an additional contribution;
- The energy modeling review fee is estimated to be 2% of building permit fees collected by the City. It is estimated that an additional 13 permits will be reviewed and issued in 2024, which is the same as the 2023 projections; and
- Net financing expense – This represents the net amount of the financing costs for the Project Agreement liabilities, offset by interest income and other recoveries. The financing costs are incurred by LIEC under the CCDEU Project Agreement with low-interest debt funding from CIB and equity funding from Corix. This funding is used to finance the construction of LIEC capital assets, which will result in an increase in the total amount of fixed assets appearing on LIEC’s balance sheet. The net financing cost is expected to decrease by \$352,970 to \$684,616 (2023 – \$1,037,586). The decrease is due to higher interest rates on investments, which have brought down the financing costs from the Project Agreement in the CCDEU service area.

Net Income and Earnings Before Interest, Taxes and Amortization (EBITA)

Net income is expected to decrease in 2024 to \$362,017 (2023 – \$593,724). EBITA, used to evaluate LIEC’s financial performance, is expected to decrease by \$612,130 to \$2,970,613 (2023 – \$3,582,743) for the budgeted year due to the operation and administration setup costs necessary for the CCDEU project infrastructure expansion and operation. This is expected and has been encountered in the past with the existing OVDEU and ADEU projects. As more customers are connected to the system over the years, revenues and EBITA will increase. EBITA as a percentage of revenue is projected to be 30.2% for 2024 compared to 40.7% in 2023.

LIEC’s financial sustainability and future growth must be taken into consideration when reviewing its EBITA and net income. LIEC is operating as a financially self-sustaining subsidiary, with the goal to expand operations without impacting the City’s finances.

LIEC's success is dependent upon developing in-house expertise and ensuring adequate capital is maintained to deliver continuous service, which includes future asset replacements as existing infrastructure components reach their end of life. Future capital investments are expected to be financed either through existing cash on hand, partnership agreements or external borrowing. Other important factors are the planning of future projects, which includes research and development, and exploratory reviews of future technology and opportunities. Consistent with the corporation's financial plan objectives, any net income will be maintained in LIEC's equity in order to fund future capital replacements and to ensure long term rate stability for rate payers.

2024 Capital Budget

As a result of general inflationary pressures caused by the pandemic, international sanctions, supply chain issues, and lack of skilled local labour and trades availability, LIEC projects are experiencing cost increases in materials, equipment, and labour. Staff are diligently working with Corix and third-party cost consulting professionals to verify project budgets, evaluate tender prices, and provide input on the developing market conditions for the upcoming years to mitigate impacts on projects. Staff are also seeking opportunities for alternative funding and grants such as Metro Vancouver funding for the Sewer Heat Recovery project.

Richmond continues to see sustained growth through development activity; however, the rising interest rates and high inflation costs have resulted in a slight decrease in activity compared to last year. LIEC staff, in collaboration with the City, continue to monitor development activity, and have established a "just in time" approach to infrastructure build-out, where new infrastructure is not built until the future customer connections are confirmed through the building permit process. This approach minimizes the risk of stranded infrastructure due to a development slowdown. Table 3 below represents the anticipated increase in serviced floor area for CCDEU and ADEU, over the next five years, based on development timings.

Table 3: Estimated DEU Service Area (2024 – 2028):

Current Service Areas	2024	2025	2026	2027	2028
Alexandra DEU (ft ²)	-	142,000	251,000	223,000	-
City Centre DEU (ft ²)	437,316	1,750,696	3,573,392	2,512,168	3,531,227
Total (ft²)	437,316	1,892,696	3,824,392	2,735,168	3,531,227
Cumulative, including existing service area (ft²)	7,049,394	8,942,090	12,766,482	15,501,650	19,032,877

By 2028, it is estimated that LIEC will be servicing more than 19 million square feet of floor area with district energy. This figure is more than 2.5 times the total area currently serviced in 2023. This growth requires expansion of the existing district energy infrastructure in order to service new developments. Therefore, continuous and ongoing investment in the optimization of the existing infrastructure is required to maintain service levels and protect the assets.

This growth also requires advanced planning and continuous improvement of new and existing district energy networks, which in turn allows LIEC to investigate, and take advantage of, new technologies and practices to improve operational efficiencies and achieve further financial and

environmental benefits. LIEC's capital budget ensures that appropriate funding is secured to deliver this work.

LIEC 2024 Capital Projects

Alexandra DEU

There are currently 13 buildings connected to the central energy plant (Attachment 2). Some minor capital upgrades included in the 2023 capital budget to improve the system's controls and monitoring are ongoing, in addition to work associated with one new connection, which will be carried over into 2024.

New Connections

There are no new connections scheduled for 2024. Staff continue to monitor development activity and work closely with developers in the service area to ensure a timely connection.

Minor Capital

Minor capital upgrades aimed at increasing the system's resiliency and reliability are planned for 2024. The upgrades include:

- Installation of a transfer switch to allow the central plant to connect to a backup power generator in case of an extended outage;
- Updating various programmable logic controllers (PLCs) and instrumentation at the Energy Transfer Stations (ETSs); and
- Replacement of equipment at the main plant which has reached its end of life.

The estimated cost for the capital upgrades is \$200,000, and the cost is inclusive of project management costs to oversee the execution of the work.

City Centre DEU

In September 2022, LIEC, Corix, and CIB executed the Project Agreement and Credit Agreement for the City Center District Energy Utility Expansion Plan. As part of the Project Agreement, Corix is required to submit an Annual Plan to LIEC outlining the anticipated capital expenditures, operations, and maintenance work based on up-to-date development timelines within the CCDEU and OVDEU service areas (see Attachment 3 and 4). These capital projects are financed by low-interest debt funding from CIB and equity funding from Corix. Corix has submitted the 2024 Annual Plan to LIEC, which is currently being reviewed by staff. Once the review process is completed, staff will bring it forward to the board in December for approval.

Minor Capital

In addition to the approved capital projects which will be designed, built, financed, operated, and maintained by Corix, staff will need to coordinate, oversee, and manage Corix's delivery of the capital projects and operations, administer the Project Agreement, and coordinate with the developers and their design teams for future connections to the system.

The scope of work includes the following:

- LIEC’s staff time required for the oversight and administration of the CCDEU Project Agreement with Corix, CCDEU projects coordination, as well as working with the developments within the CCDEU service area to ensure their timely and successful connection to the system; and
- Professional fees to conduct third-party review of the Annual Plan, provide support on interpretation of the Project Agreement terms, and costs associated with external counsel services to amend the terms of the Project Agreement based on funding received from the Greater Vancouver Sewer and Drainage District for the Sewer Heat Recovery project.

The cost for the above work will require \$625,000 to be approved as part of the capital budget.

Sewer Heat Recovery Central Energy Plant (SHR CEP) CleanBC Grant

In 2021, LIEC secured a \$6,200,000 CleanBC Communities Fund grant to implement the SHR CEP facility and provide service to customers by utilizing renewable sewer heat recovery technology. This facility will aid in achieving the City of Richmond Community Energy & Emission Plan 2050 to reach net zero emissions by 2050.

The SHR CEP project is being delivered under the CCDEU Project Agreement. Costs associated with the project are financed by CIB, Corix and CleanBC Communities grant funding, and are presented in each Annual Plan submission for board approval. Due to CleanBC requiring payment certification prior to reimbursing LIEC for the grant fund, upfront funding from LIEC is required to progress the project prior to reconciling the costs with the province on a quarterly basis, and Corix immediately thereafter.

It is anticipated that \$1,400,000 will be expended in 2024 to complete preliminary engineering and commence the detailed design stage for the project.

The internal LIEC budget is recommended to finance the 2024 capital projects. Staff have completed a five-year financial analysis of the projected cash flow and the analysis shows that LIEC can fund the 2024 capital projects internally. The summary of the 2024 LIEC Capital Projects are presented in Table 4 below.

Table 4: 2024 Capital Projects and Funding Summary

Capital Projects	Total Capital Budget
Alexandra DEU	\$200,000
Minor Capital	\$200,000
City Centre DEU	\$2,025,000
Minor Capital	\$625,000
SHR CEP	\$1,400,000
Grand Total	\$2,225,000

Conclusion

The 2024 Operating and Capital Budgets are based on staff's projections and assumptions available at the time of writing. The recommended capital budget for 2024 is \$2,225,000. Staff recommend that the 2024 Operating and Capital Budgets be approved.



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AA:jv

Att. 1: District Energy Utility Services

Att. 2: Alexandra Neighbourhood and ADEU Service Area Informational Map

Att. 3: Oval Village Neighbourhood and OVDEU Service Area Informational Map

Att. 4: City Centre Area and CCDEU Service Area Informational Map

District Energy Utility Services

The City of Richmond incorporated Lulu Island Energy Company Ltd. (LIEC) in 2013 for the purposes of carrying out the City’s district energy initiatives. LIEC owns and operates the Alexandra District Energy (ADEU) and City Centre District Energy Utilities (CCDEU). Table 1 below provides a summary of the developments connected under the DEU service areas to-date.

Table 1: District Energy Utility Service Areas

	Buildings to Date	Residential Units to Date	Floor Area	
			To-date	Build-out
Alexandra District Energy Utility	13	2,200	2.4M ft ²	4.4M ft ²
City Centre District Energy Utility ⁽¹⁾	17	4,256	4.9M ft ²	54.4M ft ²
Total Connected Floor Area			7.3M ft²	58.8M ft²

(1) OVDEU service area has been incorporated into the CCDEU service area per the executed Project Agreement

Alexandra District Energy Utility (ADEU)

ADEU provides heating and cooling services to nine residential buildings in the ADEU service area, a large commercial development at “Central at Garden City”, the Richmond Jamatkhana temple, and Fire Hall No. 3, for a total of 2,200 residential units and over 2.4 million square feet of floor area (see Attachment 2). While some electricity is consumed for pumping and equipment operations, most of this energy is currently produced locally from existing geo-exchange fields in the greenway corridor and West Cambie Park, and highly efficient air source heat pumps.

Table 2 represents anticipated development connection timelines in ADEU for the next three years.

Table 2: Development Timing in ADEU Service Area

Development	Anticipated Occupancy
9300 Cambie Road	2025
4008 Stolberg	2026
9291 Alexandra Road	2026
9080 Odlin Rd	2027

City Centre District Energy Utility (CCDEU)

In September 2022, LIEC executed agreements with Corix Utilities Inc. and Canada Infrastructure Bank to design, build, finance, operate and maintain CCDEU infrastructure providing heating and cooling services to over 170 new residential, commercial, and mixed-use developments by 2050.

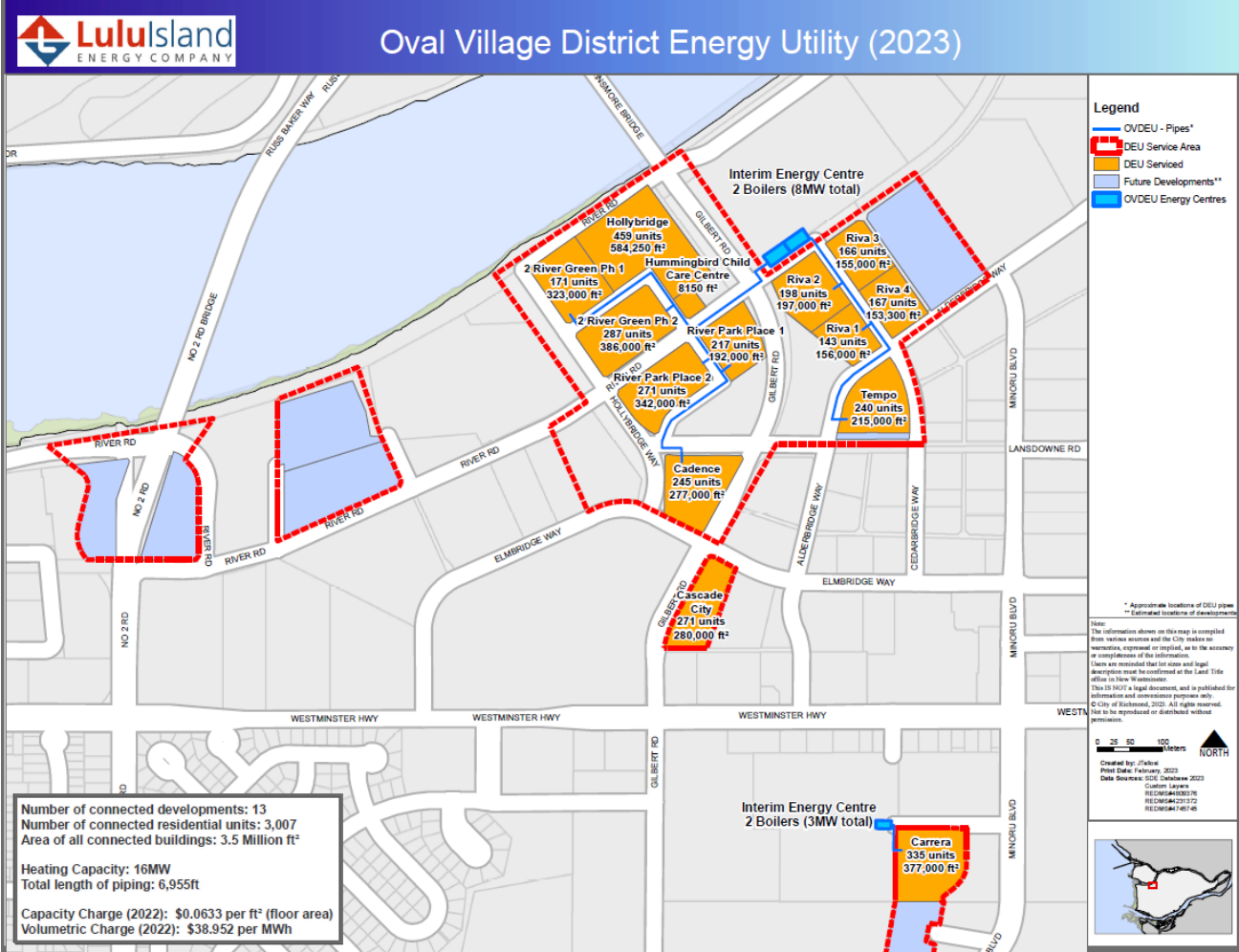
The project is expected to reduce GHG emissions by one million tonnes by 2050. To date, 17 developments are connected to the CCDEU with several new connections planned for the next year.

Table 3 represents anticipated development connection timelines in CCDEU for the next three years.

Table 3: Development Timing in CCDEU Service Area

Development	Anticipated Occupancy
Richmond Centre Phase 1b – 6788, 6808 Minoru Boulevard, and 7557 Cst. Jimmy Ng Road	2024
Richmond Centre Phase 1a – 6200-6600 Minoru Boulevard	2025
Onni Riva 5 – 7811 Alderbridge Way	2025
8880 Cook Road	2025
8108 Lansdowne Road	2025
Pathways – 5491 No. 2 Road	2025
Park Residences Phase 2 (Towers D&E) – 6355 Mah Bing Street	2025
Luxe Towline – 5593 No. 3 Road	2025
Onni Riva 6 – 7028 River Parkway	2026
South Street – 5333 No. 3 Road	2026
Duck Island – 8351 River Road	2026
Richmond Centre Phase 1c – 6551 No. 3 Road	2026
Park Residences Phase 2 (Tower C) – 6333 Mah Bing Street	2026
2980 No. 3 Road	2026
Polygon Talistar A – 3488 Ketcheson Crescent	2026
Polygon Aurora D – 3588 Ketcheson Road	2026

Oval Village Neighbourhood and OVDEU Service Area Informational Map



City Centre Area and CCDEU Service Area Informational Map

